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10/608,357	06/27/2003	Padma Prabodh Varanasi	J-3866	7780

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EXAMINER	
CHORBAJI, MONZER R	
ART UNIT	PAPER NUMBER
1797	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/608,357	VARANASI ET AL.	
	Examiner	Art Unit	
	MONZER R. CHORBAJI	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 November 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24 and 49-72* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-24* is/are allowed.

6)☒ Claim(s) *49-72* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 October 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This non-final action is in response to the RCE received on 11/23/09

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 49-55, 57-59, 61-62, 65-66, 68-69, and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571).

Regarding claim 49, Triplett discloses a refill (figure 3:12 and 14), comprising:

A container (figure 3:14) comprising an aperture (unlabeled opening of liquid reservoir 14 as shown in figure 3); and

A preselected volume (unlabeled preselected volume of volatile liquid that is contained within reservoir 14 as shown in figure 3) of volatile liquid disposed in the container, wherein the volatile liquid includes a plurality of components (col.8, lines 6-8; Triplett teaches combining different materials and components as related to the types of chemicals illustrated in col.4, lines 44-50).

As to the limitations that the volume is preselected based on a predetermined evaporation profile including at least two evaporation rates as measured and calculated by drop shape analysis, a first evaporation rate calculated at a first time and a second evaporation rate calculated at a second time, wherein the evaporation rate at each time is calculated using an equation wherein the evaporation rate at a time t = 2(volume at t_2 - volume at t_1) / (surface area at t_2 + surface area at t_1), where time t = (t_1 + t_2)/2; Triplett fails to teach such limitations.

However, different volatile liquids are known to have various different evaporation profiles that include different rates of evaporation which are also dependent upon temperature values, viscosity of the liquid, as well as the method of calculation. Evaporation rates at various temperature values are properties of the volatile liquids that achieve a recognized result of either rapid or slow emission of, for example, deodorizing

material into ambient air. It would have been obvious to one of ordinary skill in the art to choose or compose a volatile liquid having a desired evaporation rate to suite the conditions where evaporation would take place. One of ordinary skill in the art would devise a volatile liquid capable of evaporation at various different temperature values to meet the needs of the consumer – i.e. rapid dissemination of fragrance, versus slow and steady release of a deodorant.

In addition, the disclosure does not show any evidence of criticality as to the use of the drop shape analysis method over other methods for determining evaporation rates. It would have been obvious to one of ordinary skill in the art to determine the optimum evaporation rate calculation method by routine experimentation since evaporation rate of volatile material is recognized as a result-effective variable.

Regarding claim 61, Triplett discloses a refill (figure 3:12 and 14), comprising;

A container (figure 3:14) and a volatile liquid carried by the container (unlabeled liquid contained within liquid reservoir 14 as shown in figure 3; and

a wick (figure 3:22) disposed in the aperture (unlabeled aperture of liquid reservoir 14 as shown in figure 3), wherein the wick is in fluid communication with the volatile liquid and the surrounding environment.

As to the limitations that the volatile liquid having an evaporation rate, wherein the volatile liquid is preselected based on an evaporation rate thereof that is calculated using an equation, wherein

the evaporation rate at a time t = 2(volume at t_2 - volume at t_1) / (surface area at t_2 + surface area at t_1), where time t = (t_1 + t_2)/2, wherein the evaporation rate is about

$5.0x10^{-9}$ to about $5.0x10^{-8}$ meters per second measured with about 30% of the volatile liquid remaining at room temperature, as measured and calculated by drop shape analysis, and wherein the volatile liquid has a relative evaporation rate between 0.50 and about 4.0;Triplett fails to teach such limitations.

However, different volatile liquids are known to have various different evaporation profiles that include different rates of evaporation which are also dependent upon temperature values, viscosity of the liquid, as well as the method of calculation. Evaporation rate and relative evaporation rate at ambient temperature are property of the volatile liquids that achieves a recognized result of either rapid or slow emission of, for example, deodorizing material into ambient air. It would have been obvious to one of ordinary skill in the art to choose or compose a volatile liquid having a desired evaporation rate to suite the conditions where evaporation would take place. One of ordinary skill in the art would devise a volatile liquid capable of evaporation at ambient room temperature to meet the needs of the consumer – i.e. rapid dissemination of fragrance, versus slow and steady release of a deodorant.

In addition, the disclosure does not show any evidence of criticality as to the use of the drop shape analysis method over other methods for determining evaporation rates. It would have been obvious to one of ordinary skill in the art to determine the optimum evaporation rate calculation method by routine experimentation since evaporation rate of volatile material is recognized as a result-effective variable.

With regard to claims 50-55, Triplett fails to disclose a method for calculating the evaporation rates of volatile material.

However, different volatile liquids are known to have various different evaporation profiles that include different rates of evaporation which are also dependent upon temperature values, viscosity of the liquid, as well as the method of calculation. Evaporation rate and relative evaporation rate at ambient temperature are property of the volatile liquids that achieves a recognized result of either rapid or slow emission of, for example, deodorizing material into ambient air. It would have been obvious to one of ordinary skill in the art to choose or compose a volatile liquid having a desired evaporation rate to suite the conditions where evaporation would take place. One of ordinary skill in the art would devise a volatile liquid capable of evaporation at ambient room temperature to meet the needs of the consumer – i.e. rapid dissemination of fragrance, versus slow and steady release of a deodorant.

In addition, the disclosure does not show any evidence of criticality as to the use of the drop shape analysis method over other methods for determining evaporation rates. It would have been obvious to one of ordinary skill in the art to determine the optimum evaporation rate calculation method by routine experimentation since evaporation rate of volatile material is recognized as a result-effective variable.

Regarding claim 57, Triplett discloses a wick (figure 3:22) disposed within the aperture of the container (figure 3:14), wherein the wick facilitates the release of the volatile active (col.4, lines 41-44).

Regarding claim 58, Triplett discloses that the wick comprises a polymeric material (col.5, lines 33-35).

Regarding claim 59 and as to the limitation that the solubility parameter of the polymeric material is different from the solubility of the plurality of components within the volatile liquid; Triplett teaches the the function of the wick is to effectively transport the liquid to be vaporized (col.5, lines 24-44). Based on these teachings, one recognizes that the polymeric material of the wick will not be soluble in the volatile liquid in order to transport the liquid for vaporization. Therefore, the wick and the volatile liquid have different solubility parameters.

Regarding claims 62, 65-66, and 72; Triplett fails to disclose a method for calculating the evaporation rates of volatile material.

However, different volatile liquids are known to have various different evaporation profiles that include different rates of evaporation which are also dependent upon temperature values, viscosity of the liquid, as well as the method of calculation. Evaporation rate at ambient temperature are property of the volatile liquids that achieves a recognized result of either rapid or slow emission of, for example, deodorizing material into ambient air. It would have been obvious to one of ordinary skill in the art to choose or compose a volatile liquid having a desired evaporation rate to suite the conditions where evaporation would take place. One of ordinary skill in the art would devise a volatile liquid capable of evaporation at ambient room temperature to meet the needs of the consumer – i.e. rapid dissemination of fragrance, versus slow and steady release of a deodorant.

In addition, the disclosure does not show any evidence of criticality as to the use of the drop shape analysis method over other methods for determining evaporation

rates. It would have been obvious to one of ordinary skill in the art to determine the optimum evaporation rate calculation method by routine experimentation since evaporation rate of volatile material is recognized as a result-effective variable.

Regarding claims 68-69, Triplett teaches that the volatile material comprises a fragrance or an insecticide (col.4, lines 44-46).

5. Claims 56 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) as applied to claims 49, 61, and further in view of Gillett et al (U.S.P.N. 5,402,517).

Regarding claims 56 and 67, Triplett fails to teach a value for the volume of the liquid volatile material in the liquid reservoir.

Gillett discloses a fragrance vaporizing apparatus (col.1, lines 8-9) having a cylindrical housing (figure 1:48) into which a suitable amount of volatile liquid material between 1 to 20 ml is added (col.4, lines 29-30). With this volume range of volatile material, the heating element is able to control the rate of vaporization of the chemical agent and thereby extend the dispensing of the fragrance material well over 30 days (col.1, lines 26-30 and col.3, lines 35-37). It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide an amount of volatile material between 1 to 20 ml into the reservoir unit of Triplett, since within this volume range of volatile material, the heating element is able to control the rate of vaporization of the chemical agent and thereby extend the dispensing of the fragrance material well over 30 days as taught by Gillett (col.1, lines 26-30 and col.3, lines 35-37).

6. Claims 60 and 63-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) as applied to claims 58, 61, and further in view of He et al (US 2002/0136886 A1).

Regarding claims 60 and 63, Triplett fails to disclose a value for the mean pore size of wick 22.

He dispenses fragrance material [0011] using polymeric wicks [0009] having average pore size from about 2 to about 70 microns [0057], because in such a pore range polymeric wicks showed no substantial fluid leakage upon inversion [0055]. It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide the refill in Triplett with a wick having an average pore size from about 2 to about 70 microns in order to have a polymeric wick that shows no substantial fluid leakage upon inversion as taught by He [0055].

Regarding claim 64 and as to the limitation that the solubility parameters of the wick and the volatile material are different; Triplett teaches the function of the wick is to effectively transport the liquid to be vaporized (col.5, lines 24-44). Based on these teachings, one recognizes that the polymeric material of the wick will not be soluble in the volatile liquid in order to transport the liquid for vaporization. Therefore, the wick and the volatile liquid have different solubility parameters.

7. Claims 70-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett et al (U.S.P.N. 6,697,571) as applied to claim 61, and further in view of Yamamoto et al. (U.S.P.N. 4,968,487).

Regarding claims 70-71, Triplett fails to disclose the use of dodecane and tetradecane as volatile liquid material.

Yamamoto discloses a vaporizing device (figure 1) for dispensing deodorants, or fragrance, or insecticides (col.1, lines 11-17) that are dissolved in a mixture of aliphatic hydrocarbon compounds that includes dodecane and tetradecane as aliphatic saturated hydrocarbons (col.6, lines 52-65 and col.7, lines 8-12) in order to insure that the liquid insecticide is to be smoothly drawn up to the wick (col.6, lines 60-65).

As to the limitation that the dodecane is present in an amount of about 60% and tetradecane is present in amount of about 40%; Yamamoto discloses forming a mixture of dodecane and tetradecane and further teaches that an aliphatic saturated hydrocarbon having the number of carbon atoms greater than 18 causes the liquid to form as a gel or a solid (col.6, lines 60-66) which is unsatisfactory for moving the liquid through the wick. Yamamoto further suggests that the number of carbon atoms be restricted to 18 or less (dodecane has 12 carbon atoms while tetradecane has 14 atoms) and suggests that the number of carbon be at least 12 in order to obtain a sufficient evaporation rate (col.7, lines 1-3). Based on such teachings, one recognizes mixing dodecane and tetradecane in ratios where the amount of dodecane will be greater than the amount of tetradecane. Therefore, calculating the ratios is recognized as a result-effective variable that is achieved through routine experimentation.

It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide the refill in Triplett with the volatile liquid mixture of

dodecane and tetradecane in order to insure that the liquid insecticide is to be smoothly drawn up to the wick as explained by Yamamoto (col.6, lines 60-65).

Allowable Subject Matter

8. Claims 1-24 are allowed.

9. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, the closest prior art of record do not teach, or fairly suggests the combination of an article that only consist of a housing, a fan, a wick, 10 ml to about 15 ml of volatile liquid material having the recited evaporation rates using the drop shape analysis method where about 90% of the volatile liquid evaporates within one and two months at ambient room temperature.

Regarding claim 13, the closest prior art of record do not teach, or fairly suggests the combination of an article that only consist of a housing, a porous wick, a preselected volume of volatile liquid material having the recited evaporation rates using the drop shape analysis method where about 90% of the volatile liquid evaporates within two months at ambient room temperature.

Response to Arguments

10. Applicant's arguments with respect to newly added claims 49-72 have been considered but are moot in view of the new grounds of rejection.

Applicants' arguments on pages 12-13 of the Remarks/Arguments section are directed toward the newly added claims, which have been rejected under new grounds

of rejection as shown above. In addition, Applicants' arguments on page 11 of the Remarks/Arguments section are directed to claims 1-24, which have been allowed.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R. CHORBAJI whose telephone number is (571)272-1271. The examiner can normally be reached on M-F 9:00-5:30.

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. R. C./

/Jill Warden/
Supervisory Patent Examiner, Art Unit 1797